COASTAL CONSTRUCTION MANUAL: A GREAT TOOL FOR PROTECTING HOMES FROM STORM DAMAGE

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When you think of the houses along the Massachusetts coastline, do you envision quaint cottages where families take their summer vacations? Or, do you think of grand shore-side homes, many of them newly built, where people enjoy the beautiful views of the ocean all year long? Whatever image comes to mind, do you think these dwellings might be in harm's way come the next hurricane or other coastal storm? Coastal property owners, as well as local building inspectors and coastal developers, should understand the potential impacts of coastal storms, and use all the tools at their disposal to protect all properties, from the smallest cottage to the most spacious mansion, from the wrath of these potentially devastating weather events.

Now, thanks to a tremendous effort by the Federal Emergency Management Agency (FEMA), a valuable new and improved tool is available to help coastal developers, planners, regulators, and the property-owners they serve identify potential hazards to property and reduce risks through proper planning and construction of residential structures in coastal areas. This tool is the recently revised third edition of the *Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas*, also known as the CCM.

Given the significant financial losses from major coastal storms, such as an estimated $1.75 billion in damage (1996 dollars) from Hurricane Bob in 1991, which greatly impacted Buzzard Bay shorelines, the CCM is invaluable. It provides advice for coastal construction "best practices" to reduce the vulnerability of houses in coastal areas. The wealth of information found in the CCM offers professionals, such as engineers, architects, and local building inspectors, state-of-the-art guidance to ensure that when construction does occur in hazard-prone coastal areas, details are incorporated into planning and design to minimize potential damage and loss.

Although the expansion of the third edition into a large, three-volume publication may appear intimidating at first–it's almost 3 inches thick!–the new format is user-friendly with figures and tables summarizing complex details and calculations. For those people more comfortable with digital formats, the CD-Rom contains interactive hyperlinks, automatic formula calculations, and an index.

The first volume of the CCM provides a historical perspective, introducing issues in the coastal environment. Statistics and photographs from past storms, including those that impacted New England such as the Hurricane of 1938 and the Halloween Northeaster of 1991, are highlighted to demonstrate the importance of proactive planning in the coastal high-hazard zones. The damages that have occurred to at-grade buildings (i.e., those at ground level) underscore the importance of CCM recommendations and requirements for elevating dwellings on piles in flood-prone coastal settings. Excerpts about storm events for regions of the U.S. are followed by an overview of the fundamentals of hazards and risk assessment for coastal properties. Volume I draws upon lessons learned to discuss how to identify and evaluate site alternatives, investigate regulatory requirements, identify hazards, and determine the financial and insurance implications for building in the coastal zone.

Volume II of the CCM leads the reader through the detailed determination of site-specific loads or pressures affecting a coastal dwelling, such as high winds, coastal floodwaters, and even earthquakes (not as vital a design consideration here in New England as it is in California). After determining the loads that would affect a specific site, the reader is guided through design and construction considerations. In addition to the proactive hazard-planning aspects of the design and construction phases, the CCM also addresses maintenance of buildings in the sometimes harsh conditions along the coast.

The appendices provided in Volume III offer helpful topic-specific details about a variety of issues ranging from material durability in the coastal environment to design guidelines for swimming pools and elevators in flood-prone areas.

HOW CAN YOU USE THE CCM TO MITIGATE COASTAL HAZARDS?

- If you are a coastal property-owner having a new home built or existing one renovated, ask your developer if they are applying the planning, design, and construction standards and recommendations from the most recent CCM.
- If you are a coastal developer (engineer, architect, builder, etc.), review the latest version of the CCM and apply the "best practices" approach to coastal residential construction when required whenever possible.

- If you are a coastal development regulator (building inspector, conservation commissioner, etc.), use the CCM as a guide and reference as you review residential coastal construction projects to ensure that "best practices" have been applied.

Printed copies and easy-to-navigate CDs of the third edition of the CCM are available by contacting the FEMA Publications Distribution Facility at 1-800-480-2520 and request FEMA Publication 55.

PROPER CONSTRUCTION IS IN THE DETAILS, SUCH AS USING AN OPEN PILE FOUNDATION AND ELEVATING THE FIRST FLOOR ABOVE BASE FLOOD ELEVATION (I.E., ABOVE THE 100-YEAR FLOOD LEVEL).

photo courtesy of FEMA